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(54) Title of the Invention: EVENT DATA CREATING DEVICE

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(57) [Abstract]

[Object] To stop events at respective positions, and to stop all events simultaneously.

[Constitution] A setting area 26 for plural events is displayed on a display device 12 along a time axis 28. An on-event icon 30 for commanding a start of a selected one of the events is displayed at a desired position in the setting area 26 by the operation of a mouse 16, while an off-event icon 32 for commanding an end to a desired one of the selected events is displayed at a desired position in the setting area 26 by the operation of the mouse 16. An end marker 34 for commanding an end to all of the selected events is displayed at a desired position in the setting area 26. In response to the display of these icons and marker, names of the on-events and start times of the on-events, names of the off-events and end times of the off-events, and an all event end time are stored in a memory within a personal computer 10.

[Claims]

[Claim 1] An event data creating device comprising:

display means having a setting area for different plural events along a time axis displayed on a display screen;

event start command indication setting means for displaying an event start command indication to command a start of a selected one of the events at a desired position in the setting area;

event end command indication setting means for displaying an event end command indication to command an end to a desired one of the selected events at a desired position in the setting area; and

event data storage means for storing event data including start and end timing data for the selected events corresponding to the displayed positions of the event start command indications and the event end command indications in the setting area.

[Claim 2] An event data creating device comprising:

display means having a setting area for different plural events along a time axis displayed on a display screen;

event start command indication setting means for displaying event start command indications to command respective starts of plural selected ones of the events at desired position in the setting area;

all event end command indication setting means for displaying an all event end command indication to command an end to all the selected events at a desired position in the setting area; and

event data storage means for storing event data including start timing data for the respective selected events corresponding to the displayed positions of the event start command indications in the setting area and end timing data for all the events corresponding to the displayed position of the all event end command indication in the setting area.

[Detailed Description of the Invention]

[0001]

[Field of Industrial Application]

The present invention relates to a device for creating event data

used to display or regenerate various events such as pictures and music with a personal computer or the like.

[0002]

[Prior Art]

An example of conventional music composing devices with a device for creating event data described above is disclosed in JP-A-Hei5-232484. This music composing device utilizes a personal computer, and displays on its display screen a musical score creating area with a time series corresponding to the progress of a music tune, as shown in FIG. 9. The musical score creating area has a line 2 divided into bars. The upper half of the line 2 is an area 2a for visual data and sound data to be pasted, while the lower half thereof is an area 2b for melodies and accompaniment patterns to be pasted. An area 4 for setting a chord to every beat is provided at the lowermost part of the musical score creating area.

[0003]

Above the musical score creating area is provided an area used for various control purposes, where various controls are made with a mouse that comes with the personal computer. For example, when a melody icon (melo) is specified, a melody palette (not shown) is called up on the display; when an accompaniment pattern icon (ptn) is specified, an accompaniment pattern palette (not shown) is called up on the display; when a vision icon (movie) is specified, a vision palette (not shown) is called up on the display; and when a sound icon (sound) is specified, a sound palette (not shown) is called up on the display.

[0004]

Various data selected from these palettes are pasted in the line 2. FIG. 9 shows an example in which melodies and accompaniments are pasted in the area 2b of the line 2, as well as visions, including still pictures (Pict) and moving pictures (movie), and sounds (sound) are pasted in the area 2a. These pasted data create event data in a memory within the personal computer. After creating event

data by the pasting, the melodies, accompaniments and sounds are performed, for example with a MIDI sound source, while the still pictures and moving pictures are displayed on the display based on the event data, by operating an icon for commanding regeneration (not shown). The regeneration is stopped as follows. For example, in case of regeneration of finite-length data, the regeneration is stopped when the regeneration reaches the end of the data; and in case of before the foregoing regeneration of finite-length data reaches the end of data, or in case of repeated data regeneration for infinite regeneration, the data regeneration is stopped immediately before regeneration of the next event starts. In the musical score of FIG. 9, all regeneration ends at the preset last bar.

[0005]

To be specific, in creating event data, visual and sound data continue from the positions where they are pasted to the positions where the next different data are pasted. For example, in FIG. 9, the moving picture 1 is continuously displayed on the display from the position where the moving picture 1 is pasted to the position where the still picture 1 is pasted.

[0006]

[Problem to be Solved by the Invention]

In the above-described music composing device, however, visual and sound data continue from the positions where they are pasted to the positions where the next different data are pasted. Thus, when only one piece of visual data is pasted, the piece of visual data is continuously displayed from the pasted position until the regeneration ends. Therefore, there is a problem that the display of a picture cannot be turned off even when it is desired that the display of the picture is turned off in consideration of the melody, for example.

[0007]

In the above-described music composing device, in addition, an

icon for commanding a stop must be operated to stop regeneration of created data halfway. Thus, there is another problem that regeneration cannot be stopped automatically but must always be stopped by the troublesome regeneration stop operation.

[0008]

[Means for Solving the Problem]

In order to achieve the foregoing object, a first aspect of the present invention comprises: display means having a setting area for different plural events along a time axis displayed on a display screen; event start command indication setting means for displaying an event start command indication to command a start of a selected one of the events at a desired position in the setting area; event end command indication setting means for displaying an event end command indication to command an end to a desired one of the selected events at a desired position in the setting area; and event data storage means for storing event data including start and end timing data for the selected events corresponding to the displayed positions of the event start command indications and the event end command indications in the setting area.

[0009]

A second aspect of the present invention comprises: display means having a setting area for different plural events along a time axis displayed on a display screen; event start command indication setting means for displaying event start command indications to command respective starts of plural selected ones of the events at desired position in the setting area; all event end command indication setting means for displaying an all event end command indication to command an end to all the selected events at a desired position in the setting area; and event data storage means for storing event data including start timing data for the respective selected events corresponding to the displayed positions of the event start command indications in the setting area and end timing data for all the events corresponding to the displayed position of

the all event end command indication in the setting area.

[0010]

[Functions]

According to the first aspect of the present invention, event start command indications for commanding a start of operation of a selected one of the events are displayed at respective desired positions in the setting area of the display means by the event start command indication setting means. Also, event end command indications for commanding an end to a desired one of the selected events are displayed at desired positions in the setting area by the event end command indication setting means. The event data storage means stores event data including start and end timing data for the selected events corresponding to displayed positions of the event start command indications and the event end command indications in the setting area.

[0011]

The event data in the event data storage means are used to control the events. The event data storage means stores respective start timing data for the events, based on which corresponding events start operation at their start timing. The event data storage means also stores end timing data for the selected events. Thus, based on the end timing data, corresponding events stop operation at their end timing. That is, each event can be stopped at its own desired timing.

[0012]

According to the second aspect of the present invention, event start command indications for commanding respective starts of operations of plural selected ones of the events are displayed at respective desired positions in the setting area of the display means by the event start command indication setting means. Also, an all event end command indication for commanding an end to all of the selected events is displayed at a desired position in the setting area by the all event end command indication setting means. The event data storage means stores event data including respective

start timing data for the selected events and end timing data for all the events, respectively corresponding to displayed positions of the event start command indications and a displayed position of the all event end command indication in the setting area.

[0013]

According to the second aspect of the present invention, the event data in the event data storage means are used to control the events, as in the first aspect of the present invention. The event data storage means stores respective start timing data for the events, based on which corresponding events start operations at their start timing, as in the first aspect of the present invention. The event data storage means also stores end timing data for all events. Thus, all the events stop operation at this end timing. That is, all the events are stopped automatically.

[0014]

[Embodiment]

As shown in FIG. 1(b), an embodiment includes a personal computer 10, a display device 12 such as CRT and LCD, a keyboard 14, and a pointing device such as mouse 16. Programs and data stored in a storage medium (not shown) such as floppy disk, hard disk or CD-ROM are read into the personal computer 10, and then the display device 12 displays a window as shown in FIG. 1(a). Event data are created in the window by the operation of the keyboard 14 or the mouse 16, and various events are regenerated based on the event data.

[0015]

The various events include music and sound effects. A MIDI interface 18, a MIDI sound source 20, an amplifier 22 and an acoustic system 24 are provided to regenerate these events. The sound effects denote the sounds of blowing wind, running water or the like sampled with a so-called sampler. Some other events are animation including still pictures and moving pictures, and characters. These animation and characters are to be displayed on the display device 12. Various data for regenerating these music, sound effects,

animation and characters are stored, for example, in a memory of the personal computer 10.

[0016]

A rectangular setting area 26 is displayed in the window shown in FIG. 1(a). The setting area 26 has a time axis 28 indicating time every 500 msec., in parallel to the horizontal axis of the setting area 26. While the time axis 28 indicates time only up to 3500 msec. in FIG. 1(a), it can indicate time up to an extended period by operating a scroll icon 25a with the mouse 16. The setting area 26 also has along its vertical axis an event name display area 29, where names of the various events, such as music, animation, sound effects and characters, are displayed in order.

[0017]

Event start command indication, for example on-event icons 30 of various kinds, are displayed below the setting area 26. These on-event icons 30 command an event to start operation. Taking music as an example, the on-event icons 30 are provided respectively to each of music pieces prepared previously, for example, to a whole tune or a certain phrase of music. In case of animation, the icons are provided respectively to plural pieces of animation (moving pictures and still pictures) prepared previously. In case of sound effects, the icons are provided respectively to plural sound effects prepared previously. In case of characters, likewise, the icons are provided respectively to plural characters prepared previously.

[0018]

While FIG. 1(a) displays one on-event icon for characters and one on-event icon for music, they can be switched to another on-event icon by the operation of the mouse 16. In FIG. 1(a), the on-event icon for characters has a filename (AAA), while the on-event icon for music has a filename (STOMP).

[0019]

An event end command indication, for example an off-event icon 32, is displayed on the left of the on-event icons 30. The off-event

icon 32 commands an event already in operation to stop, and is prepared for each event. While an off-event icon for characters is displayed in FIG. 1(a), it can be switched to an off-event icon for another event by the operation of the mouse 16.

[0020]

By dragging and dropping these on-event icons 30 and off-event icons 32 onto the setting area 26 with the mouse 16, an event list, for example a two-dimensional array 33 of event data as shown in FIG. 8, is created in the memory of the personal computer 10. Thus, the mouse 16 and the personal computer 10 function as event start command indication setting means and event end command indication setting means, while the two-dimensional array 33 functions as event data storage means.

[0021]

For example, the mouse 16 is moved onto a desired one of the on-event icons 30, for example an on-event icon 30 for characters, and the left button of the mouse 16 is depressed. While keeping this state, the on-event icon 30 for characters is dragged to the position indicating a desired time, for example 0 msec., in the character section of the setting area 26. Then, the depressing on the left button of the mouse is cancelled, or in other words the icon is dropped. An on-event icon for characters is designed to store plural character strings and update the character string to be dropped with every drag-and-drop operation. For example, when the on-event icon for characters (AAA) stores plural character strings Line 1, Line 2, Line 3, etc., the icon is designed to display the first character string Line 1 with the first drag-and-drop operation described above. The character strings Line 2, Line 3, etc., will appear in order.

[0022]

In this manner, the on-event icon 30 for characters is displayed at the position where it is dropped, and Line 1 as the contents of the character string is displayed below the icon. In the row

numbered 1 of the two-dimensional array 33 in the memory are stored: Characters ON, in its first column event name; and an event number representing the number of the event to be turned on (characters, in this case), in its second column. In its third column corresponding to time is stored a start time for the on-event, that is, the time corresponding to the position where the on-event icon for characters is pasted. Thus, the event list is updated. While the whole contents of the character string are displayed below the on-event icon for characters displayed in the setting area 26 in the above description, the number of the character string may be displayed alternatively. For example, seeing that the Line 1 is the first character string of the on-event icon (AAA), the Line 2 the second, the Line 3 the third, ..., and the Line N the N-th, a display scheme as shown in FIG. 1(a) may be adopted.

[0023]

In the same manner, when a desired one of the on-event icons for music is dragged and dropped onto a desired position in the music section of the setting area 26, the on-event icon for music is pasted at that position. Then the event name, event number and time are stored in relation to the pasted icon as shown in the row numbered 2 of FIG. 8.

[0024]

When an on-event icon, for example an on-event icon for music, is pasted and then another on-event icon (on-event icon for characters Line 1 in FIG. 1(a)) is pasted on the left of the pasted icon for music, the time value of the on-event icon pasted later is smaller than that of the on-event icon pasted previously. Therefore, the event list is updated so that the event data (event name, event number and time) relating to the on-event icon pasted later are stored in a row with a number lower than that of the row where the event data of the on-event icon pasted previously are stored.

[0025]

When the off-event icon 32 for characters is dragged and dropped onto a desired position, for example the position corresponding to a desired time to stop the display of the character string Line 1, in the character section of the setting area 26, the off-event icon 32 for characters is pasted at that position. Then in the row numbered 3 of FIG. 8 are stored: Characters OFF in the event name column; an event number representing the number of the event to be turned off in the event number column; and a time for the characters to be turned off, that is, the time corresponding to the position where the off-event icon 32 is pasted, in the time column. In FIG. 8, the event number for the off-event for characters is stored. However, in case of an off-event where one track is given for setting the off-event, as shown in the character section (or music, animation or effect sound section) in the example of FIG. 1(a), the off-event inevitably means that it turns off the ongoing event. Thus, only the event name is required while the event number is not necessarily required. In such a case, it is not necessarily required to store the event number of an off-event. On the contrary, in case of plural tracks, it is necessary to distinguish events under the same name according to the tracks, and thus to store the event numbers, in addition, as in the example of FIG. 8.

[0026]

As shown for example in FIG. 1(a), when an on-event icon for the second character string Line 2 is pasted and then an on-event icon for other characters, for example the third character string Line 3, is pasted, the display of Line 2 is stopped and switched to the display of Line 3 at the time corresponding to where the on-event icon for the third character string Line 3 is pasted, in actual regeneration of events. With this setting, there is no off-event for characters stored between the on-event for characters in the row numbered 4 and the on-event for characters in the row numbered 5, in FIG. 8. This is merely for reasons of the difference in actual processing; if it is preferred to insert an off-event to display

the third character string Line 3 after turning off the second character string Line 2, the setting may be changed to automatically insert an event for turning off the second character string between the row numbered 4 and the row numbered 5.

[0027]

In addition, an all event end command indication, for example an end marker 34, is displayed across the event sections, that is, in parallel to the vertical axis, in the setting area 26. The end marker 34 is designed to simultaneously stop all the events being regenerated, and can be set at a desired position along the horizontal axis in the setting area 26, with a drag-and-drop operation on the mouse 16. In response to the drag-and-drop operation, the event list is updated so that End is stored in the event name column in a given row in the two-dimensional array 33 of event data, and the time corresponding to the position where the drag-and-drop operation is made is stored in the time column in the same row. In order to perform the above operation, the setting of a stop position using the end marker 34 can be freely made after or during event data creation.

[0028]

When the end marker 34 is positioned at the rightmost as shown in FIG. 1(a), the event name and time corresponding to the end marker 34 appear in the last row as shown in FIG. 8. If the end marker 34 is dragged and dropped onto the position corresponding, for example, to 1250 msec. in FIG. 1(a), then End is stored in the event name column in the row numbered 5 and 1250 msec. is stored in the time column. The event data previously stored in the row numbered 5, with its event name "Characters ON", event number "3" and time "1500 msec." are now moved to the row numbered 6.

[0029]

To regenerate music, animation or the like based on the event data created in this manner, a play button 36 shown in FIG. 1(a) may be clicked with the mouse 16. To stop regeneration, a stop button 38

may be clicked with the mouse 16.

[0030]

To create event data in the foregoing manner, the personal computer 10 performs processes as shown in flowcharts of FIG. 2 through FIG. 7. The personal computer 10 is installed with an event-driven operating system such as Windows. In this type of event-driven operating system, the user makes an input operation, such as specifying a menu (predetermined area) in the window displayed on the display device 12, for example with the mouse 16, or catching and dragging a predetermined character displayed in the window, for example with the mouse 16, to give a command (event), by which the programs prepared previously operate. These specified programs can be processed in parallel.

[0031]

When the process is started, as shown in FIG. 2, initial setting is established (step S2); a determination is made whether a mouse event has occurred, that is, whether the mouse 16 has been operated (step S4); and, if any mouse event has occurred, a mouse event process is performed (step S6).

[0032]

If any mouse event has not occurred, or after the mouse event process is performed, a determination is made whether a drawing event has occurred, that is, whether the display on the display device 12 need be changed (step S8), for example in response to the operation of the mouse 16; if any drawing event has occurred, a drawing process is performed (step S10); and then the process returns to step S4. If any drawing event has not occurred, then the process directly returns to step S4.

[0033]

Although not shown for simplification of description in FIG. 2, a process in response to a key event that occurs with the key operations on the keyboard 14, for example, is performed in actual practice.

[0034]

In the initial setting of step S2, as shown in FIG. 3, a preset aspect ratio of the screen is first obtained (step S12). That is, the number of dots of the screen in the X-axis (horizontal) direction is stored in x Size while the number of dots in the Y-axis (vertical) direction is stored in y Size. Then a determination is made whether or not x Size is larger than y Size (step S14).

[0035]

If x Size is larger than y Size, a horizontal display priority flag is set (step S16). If x Size is smaller than y Size, the horizontal display priority flag is reset (step S18). When the horizontal display priority flag is set, the setting region 26 is displayed with its time axis along the horizontal direction as shown in FIG. 1(a) in the drawing process described later. On the other hand, when the horizontal display priority flag is reset, the setting region 26 is displayed with its time axis along the vertical direction. Subsequently to step S16 or step S18, a depressing flag in relation to the left button of the mouse is initialized (step S20).

[0036]

In the mouse event process, as shown in FIG. 4, a determination is made whether the left button of the mouse 16 is depressed (step S22). If the left button of the mouse 16 is depressed, the left-button depressing flag is set (step S24), to perform a left-button depressing process (step S25).

[0037]

If the left button is not depressed, a determination is made whether the depressing on the left button is cancelled (step S26). If the depressing on the left button is cancelled, the left-button depressing flag is cancelled (step S28), to perform a left-button depressing cancellation process (step S30). If the depressing on the left button is not cancelled, another mouse event is processed (step S32).

[0038]

Depressing on the left button indicates the start of a drag-and-drop operation, cancellation of the depressing on the left button indicates the end of the drag-and-drop operation, and the depressing on the left button without being cancelled indicates that the drag-and-drop operation is in progress.

[0039]

In the left-button depressing process, as shown in FIG. 5, a determination is made whether the depressing on the left button is targeted to an end marker 34 (step S34). If an end marker 34 is targeted, an end marker drag flag is set (step S36).

[0040]

If the left-button depressing process is not targeted to an end marker 34, a determination is made whether the left-button depressing process is targeted to an off-event (step S38). If the depressing process is targeted to an off-event, an off-event drag flag is set (step S40).

[0041]

If the depressing process is not targeted to an off-event, a process relating to another event, such as on-event and play button, is performed (step S42). If the depressing process is targeted to an on-event, an on-event drag flag is set as in the case of an end marker 34 and an off-event.

[0042]

In the left-button depressing cancellation process, as shown in FIG. 6, a determination is made whether the cancelled depressing is targeted to an end marker 34 (step S44). If the cancelled depressing is targeted to an end marker 34, the end marker 34 drag flag is cancelled (step S46), to calculate actual end timing based on the position displayed currently (position where the depressing is cancelled) (step S48). This is for the purpose of stopping in synchronization with any music and sound effects to be stopped.

[0043]

The event list, that is, the two-dimensional array of event data as shown in FIG. 8, is updated in the foregoing manner (step S50). Then a redraw flag is set (step S52). By setting the redraw flag, an end marker 34 is displayed at the position where it is dragged and dropped in the drawing process described later.

[0044]

In step S44, if the cancelled depressing is not targeted to an end marker 34, a determination is made whether the cancelled depressing is targeted to an off-event (step S54). If the cancelled depressing is targeted to an off-event, the off-event drag flag is cancelled (step S56), to calculate actual end timing based on the position displayed currently (step S58), update the event list (step S60), and set the redraw flag (step S62). By setting the redraw flag, an off-event is displayed at the position where it is dragged and dropped in the drawing process described later.

[0045]

In step S54, if the cancelled depressing on the left button is not targeted to an off-event, a process relating to another event, such as play button 36, is performed (step S64). Here, if the cancelled depressing on the left button is targeted to an on-event, the on-event drag flag is cancelled, to calculate a start time for the on-event, update the event list, and set the redraw flag. This is for the purpose of displaying an on-event at the position where it is dragged and dropped in the drawing process.

[0046]

The drawing process is performed when the redraw flag is set, for example. As shown in FIG. 7, information on respective events is drawn (step S66) and the redraw flag is cleared (step S68).

[0047]

In this manner, data relating to regeneration timing of various events are stored in the event list. When the play button 36 is clicked with the mouse 16, regeneration of events are started and stopped in response to their respective timing stored in the time

column of the event list. All the events are automatically stopped at the timing of an all event end.

[0048]

Conceivably, a system dealing with stored data of various events (music, pictures, sampled waveforms, characters) as described above may be provided with means for utilizing the various types of stored data for its additional functionality, apart from the above means for setting the regeneration timing of the data.

[0049]

Examples of such means include timer regeneration means, continuous performance means for multiple music tunes, etc. to be described below. Note that any of the means described below can be implemented by a program.

[0050]

Timer regeneration means

A clock capable of setting a regeneration start time for stored data, and which stored data of which event to be regenerated, is provided, similar to a clock capable of setting an alarm sounding time. A regeneration start time and which stored data to be regenerated are set.

[0051]

The system is set to start regeneration automatically with a timer; for example, it starts regeneration of music A and picture data A-1 at 8 a.m., starts regeneration of a sound effect B and picture data B-1 at 10 a.m., and starts regeneration of music C at 0 p.m.

[0052]

Continuous performance means for multiple tunes

This means allows an automatic performance device for regenerating music to perform a function similar to a CD player or the like. Performance modes for continuously performing multiple tunes include three modes: sequential continuous performance, random performance, and single performance.

[0053]

Tune selection mode

In this mode, before performance in any of the above modes, tunes desired to be performed are selected from a tune list stored beforehand, to set a tune selection list. If a tune setting list is already prepared, selected tunes on the tune setting list can be changed and deleted in this tune selection mode. At this time, if the stored performance data utilize the standard MIDI file format, which stores tune name data, the tune names can be additionally displayed in the tune list, thereby facilitating the tune selection process compared to when only the file names are displayed.

[0054]

Performance mode

Sequential continuous performance mode

Tunes are performed sequentially continuously in the order of the tune setting list, 1-2-3-4, selected and set in the above tune selection mode. At this time, any number that is not set is automatically skipped. After the tune of the last number is performed, then performance of the first tune is started again. Once the stop mode is entered and this performance mode is entered again, performance of the tune that was suspended in the middle is started from the beginning.

[0055]

Random performance mode

Tunes in the above tune setting list are performed at random. At this time, any number that is not set is automatically skipped. Once the stop mode is entered and this performance mode is entered again, performance of the tune that was suspended in the middle is started from the beginning.

[0056]

Single performance mode

When the single performance mode is entered, the tune setting list and a switch for direct selection of tunes are displayed automatically. When performance is commanded, one tune is

performed, in the order of the tune setting list, and the stop mode is entered. When performance is commanded again in the stop mode, performance of the next tune in the tune setting list is started. When the performance is ended, the stop mode is entered. Each time performance is commanded, the tunes are sequentially performed in the order of the tune setting list. The switch for direct selection of tunes is adapted to directly select the tune to be performed, apart from the above-described single performance.

[0057]

While four types of events, namely music, sound effects, pictures and characters, are prepared in the above embodiment, the events are not limited thereto; other types of events may be used, or the number of event types may be reduced to less than four.

[0058]

[Effect of the Invention]

As described above, according to a first aspect of the present invention (invention of Claim 1), the event data storage means stores end timing data for the selected events. Therefore, once operation of the events is started in accordance with the event data, the operation of the events can be stopped correspondingly to their respective timing. In this manner, events can be stopped at respective desired timing.

[0059]

According to a second aspect of the present invention (invention of Claim 2), the event data storage means stores end timing data for all of the events, apart from start timing data for the selected events. Therefore, operation of all of the events is stopped at the end timing. That is, all events are stopped automatically, without every time operating the stop button with the mouse or the like.

[Brief Description of Drawings]

FIG. 1 is a block diagram of an embodiment of an event data creating device according to the present invention, and a view of a display

screen thereof.

FIG. 2 is a flowchart of a main routine of the embodiment.

FIG. 3 is a flowchart of initial setting of the embodiment.

FIG. 4 is a flowchart of a mouse event process of the embodiment.

FIG. 5 is a flowchart of a left-button depressing process of the embodiment.

FIG. 6 is a flowchart of a left-button depressing cancellation process of the embodiment.

FIG. 7 is a flowchart of a drawing process of the embodiment.

FIG. 8 is a diagram showing event data of the embodiment.

FIG. 9 is a view of an event data creating screen of a conventional event data creating device.

[Description of Reference Numerals]

10: personal computer

12: display device (display means)

16: mouse (event end command indication setting means, event end command indication setting means, all event end command indication setting means)

26: setting area

30: on-event icon (event start command indication)

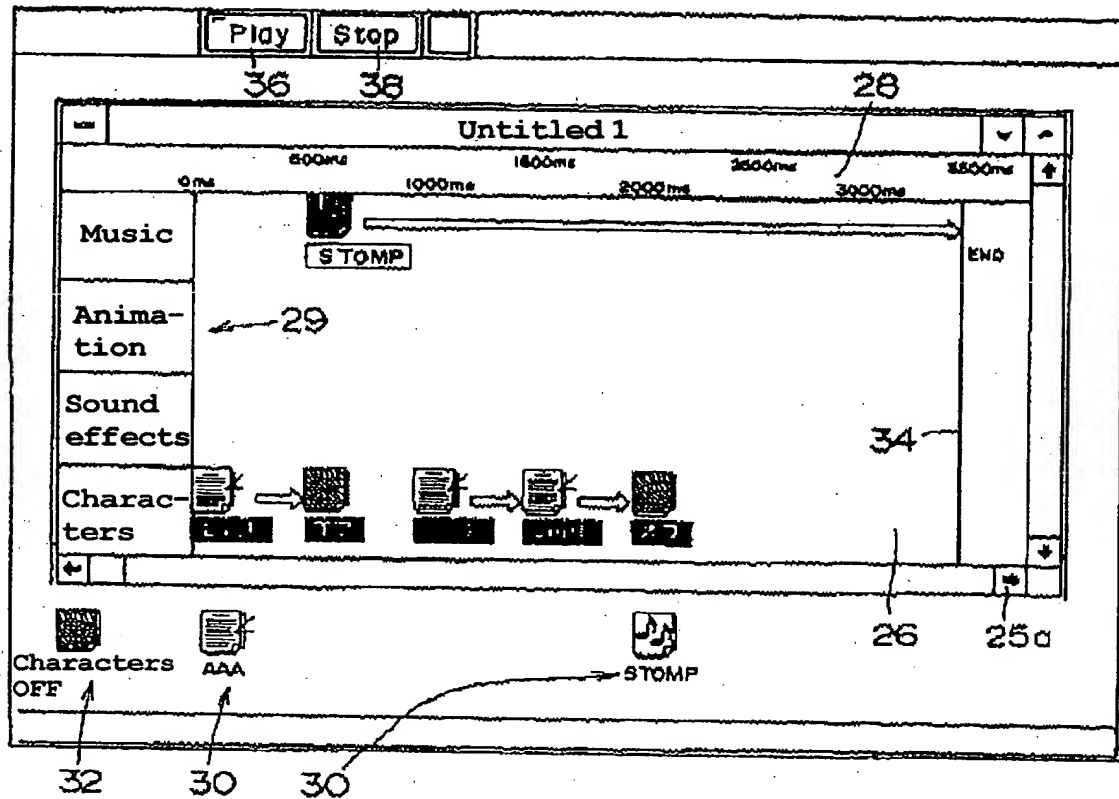
32: off-event icon (event end command indication)

33: two-dimensional array (event data storage means)

34: end marker (all event end command indication)

FIG. 1

(a)



(b)

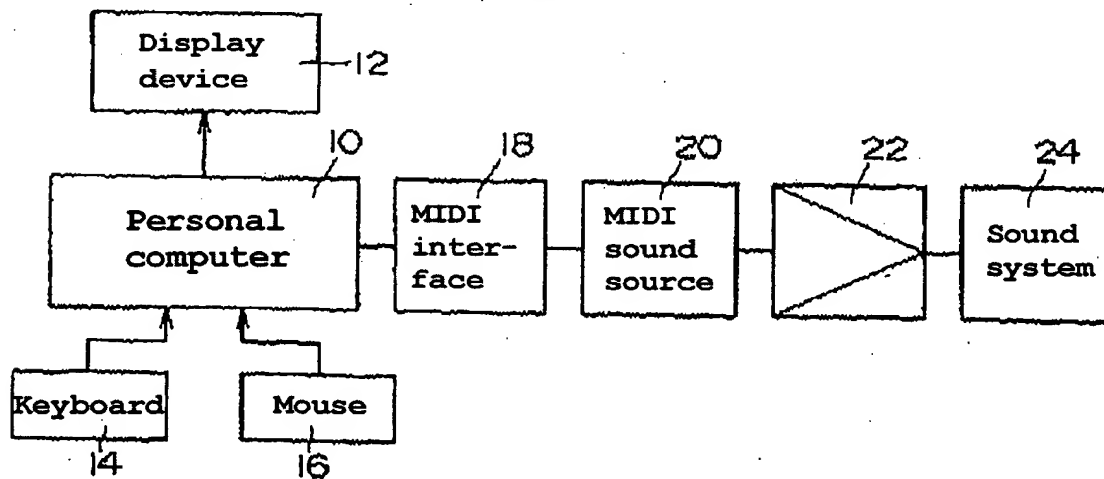


FIG. 2

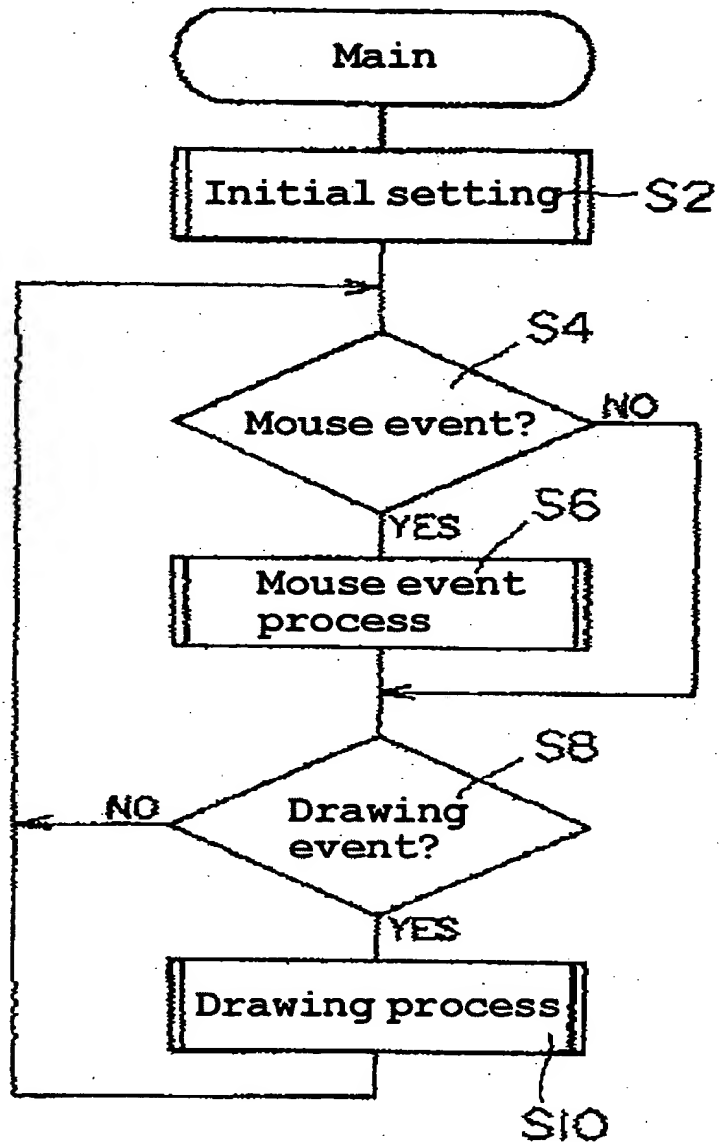


FIG. 3

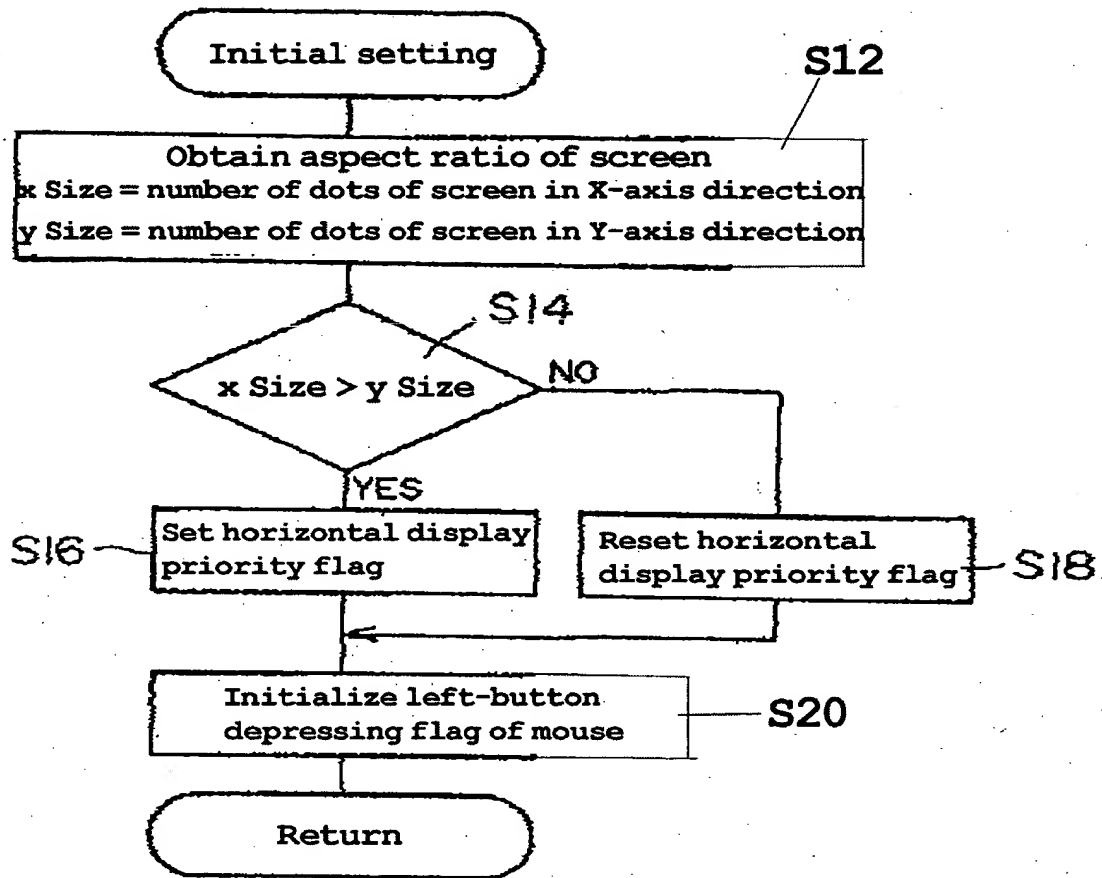


FIG. 4

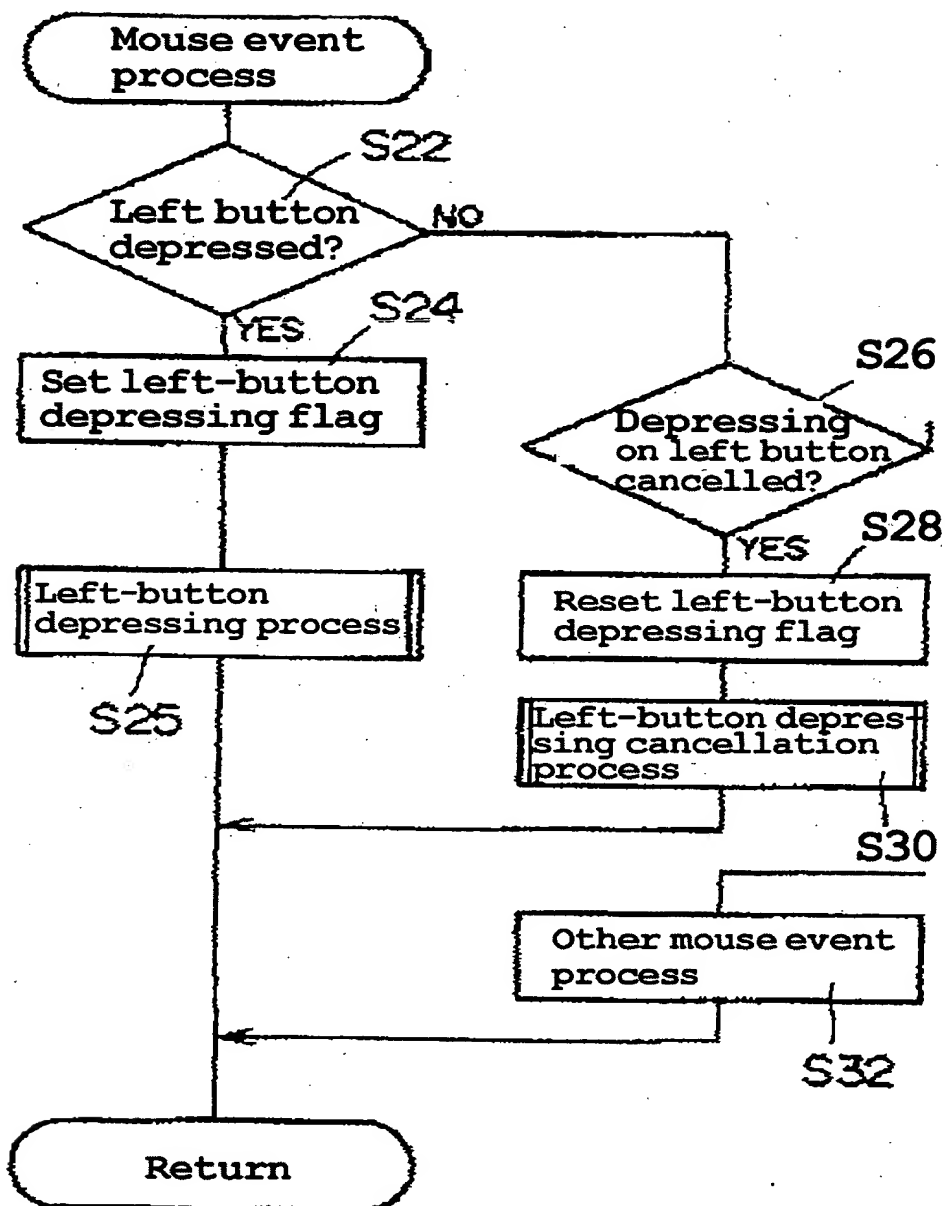


FIG. 5

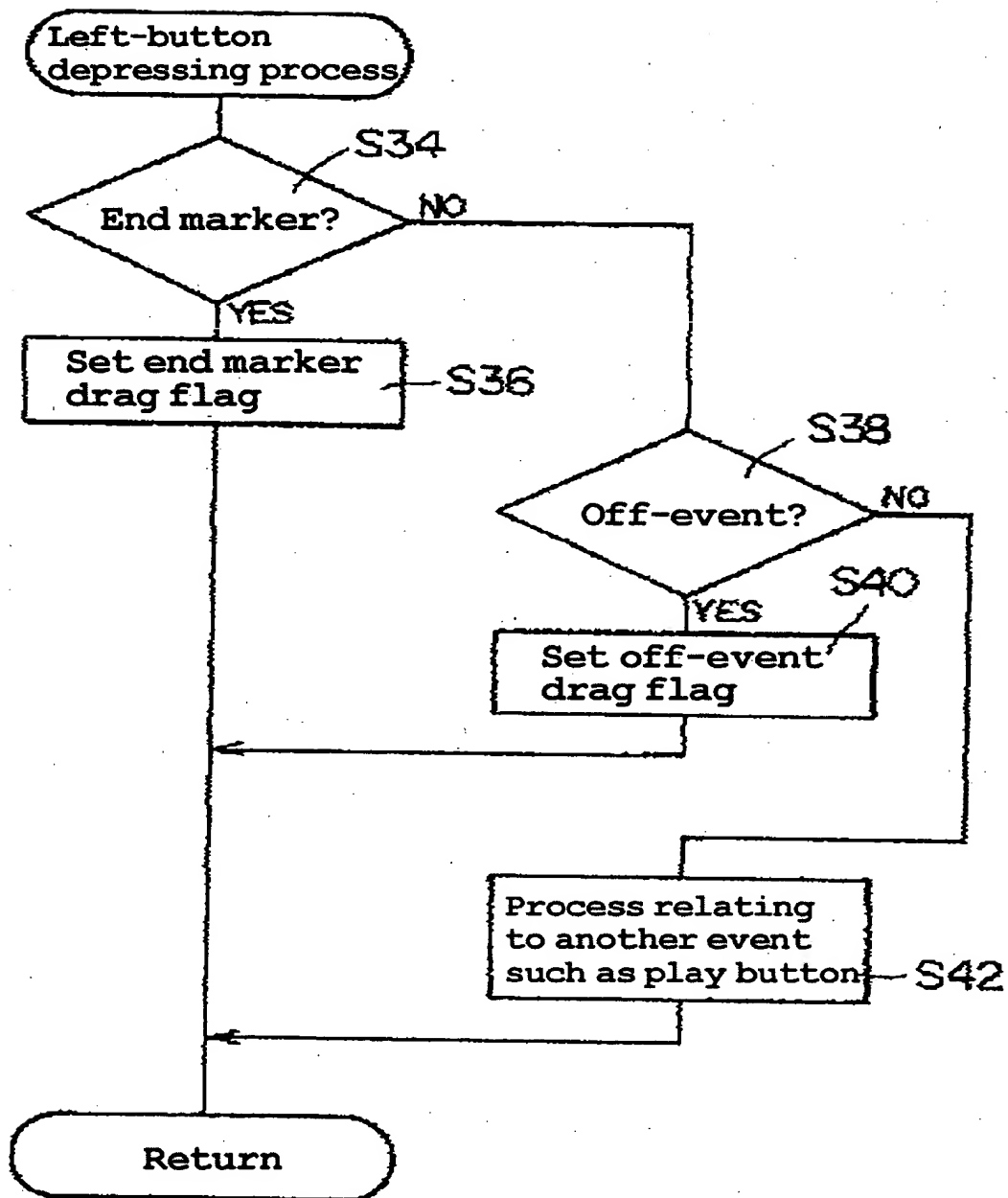


FIG. 6

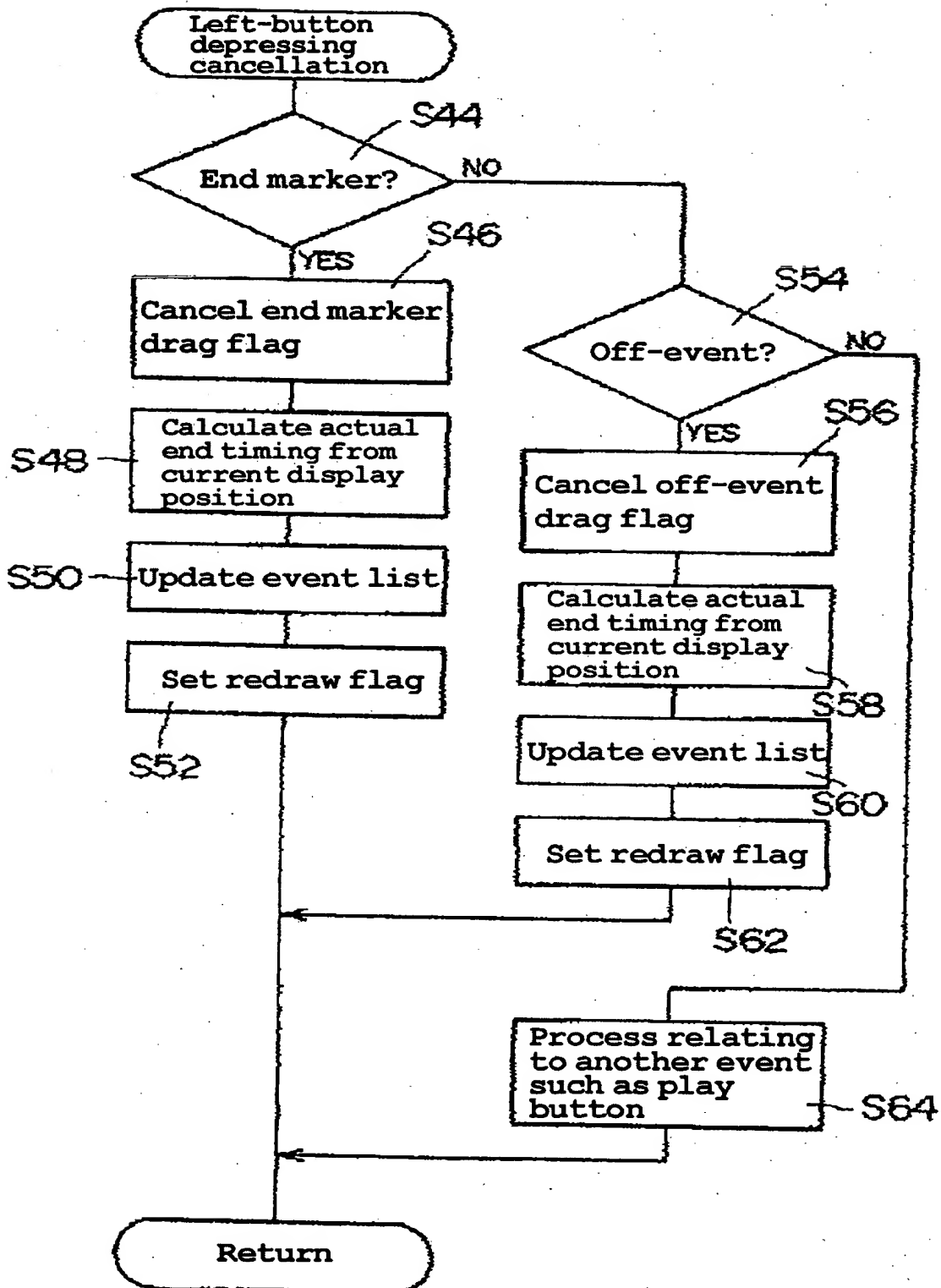


FIG. 7

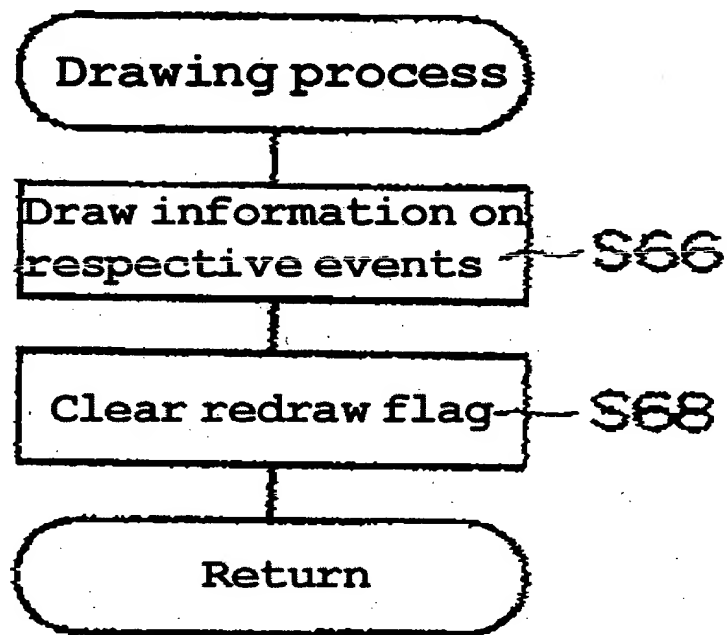


FIG. 8

Line number	Event name	Event number	Time
1	Characters ON	1	0
2	Music ON	3	500
3	Characters ON	1	510
4	Characters ON	2	1000
5	Characters ON	3	1500
6	Characters ON		3500
1	1	1	1
2	2	2	2
3	3	3	3
4	4	4	4
5	5	5	5
6	6	6	6

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FIG. 9

